

THE TYPE OF THE GENUS PYRRHOPYGE (LEPIDOPTERA—HESPERIIDÆ)

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There has been a great deal of confusion regarding the type of the genus *Pyrrhopyge* and the identity of certain species of the genus described by Linnæus and other authors. In order to clear up the matter it is necessary to summarize the relevant literature.

(1) Linnæus (1758: Syst. Nat. 10th edition) described on page 485 under the generic group *Papilio Plebeius Urbicola* (= *Hesperiidæ*):

- (a) "*Phidias*. 164. P. P. alis rotundatis atris nitentibus margine albis, ore anoque rubris. M.L.U. Pet Gaz t. 43. f. 15. Habitat in Indiis." The description relates to a black insect with white cilia, palpi and anus red. The figure bears no relation to the description: it is of a moth with a pale apex to the forewing and a broad pale margin to the hindwing.
- (b) "*Bixæ*. 165. P. P. alis rotundatus fuscis, basi virentibus posticis subtus fascia alba. Merian t. 44. Pet Gaz t. 32. f5. Habitat in America." The description is of a dark insect with a white band on the hindwing underside. The Merian figure indicates such an insect, with a red head, palpi and anus: the white band is basal and extends to the end of the cell. The Pet. Gaz. figure depicts an insect with large hyaline spots on the forewing: it does not correspond with the description and represents the insect known as *Epargyreus tityrus* Fab.
- (c) On page 487. "*Acastus* 186. *Papilio Barbarus*. Alis rotundatus albis: maculis quinque transversis apicibusque fuscis: subtus flavescentibus: In Indiis." The insect is a pierid, which seems to have been overlooked in the "*Lepidopterorum Catalogus*."

(2) Clerck (1759: Icones) published the following figures of insects:

- (a) Plate 42, fig. 4. "*Papilio bixæ*" on the plate, depicting

a well known West African insect with a white band on the hindwing underside, centrally situated, not basally as in the Merian figure, quoted by Linnæus.

- (b) Plate 44, figs. 1. 2. Unnamed on the plate and called "*Papilio phidias*" in the index. It depicts an insect with a very narrow, broken, white band on the hindwing underside: with a red head, palpi and anus.
- (c) Plate 44, figs. 3. 4. Unnamed on the plate or in the index. It depicts an insect with a red margin to the hindwing underside and: it is correctly known as *barcastus* Sepp.
- (3) Linnæus (1764: Mus. Ludovicæ Ulricæ) referred to
 - (a) page 334. No. 152. *phidias*, quoting Clerck plate 44 figs 1. 2. 3. 4. He admits the Pet. Gaz., figure to be a *Phalæna*. He specifies a white band on the hindwing underside, which he says sometimes extends to the upperwing: he adds that the female has a red edge (*barcastus*). It will be seen that he had departed from his original description and has included three other species under the name *phidias*.
 - (b) page 335. No. 153. *bixæ*, quoting Clerck plate 42 fig. 4 as well as Merian plate 44. He adds that the Pet. Gaz. figure he previously quoted is of an insect from Carolina with hyaline spots on the forewing and a white band on the hindwing underside (*tityrus*).
- (4) Linnæus (1767: Syst. Nat. 12th edition 1/2: page 795 made the following additions to the 10th edition.
 - "*Phidias*. 263. Mus. Lud. Ulr. 334. Clerck ic. t. 44. f. 1. 2. 3. 4. *Bixæ*. 264. Mus. Lud. Ulr. 335. Clerck ic. t. 42. f. 4."
- (5) Cramer (Pap. Exot.) described and figured the following:
 - (a) 1775. Vol. I. plate 41, C.D. *Papilio* P. U. *acastus* Nov: Surinam. An insect with a yellow edge to the hindwing underside. His name falls as a homonym of *acastus* Linnæus, see (1) above and the correct name is *venezuelæ* Scudder.
 - (b) 1779. Vol. III, plate 199, C.D. *Papilio* P. U. *bixæ* Linn: Guiana. The white band on the hindwing underside extends to the upperwing and represents a different insect to

that figured by Merian or figured by Clerck: it was named *fluminis* by Butler in 1872.

- (c) 1779. Vol. III, plate 199, E. *Papilio* P. U. *acastus* Cramer: Surinam. An insect with a red edge to the hindwing underside: it is *barcastus* Sepp.

- (d) 1779. Vol. III, plate 244 A.B. *Papilio* P. U. *phidias* Linn: China, Bengal and Surinam. It is not any of the insects called *phidias* by Linnæus, but the very different *Pyrrhocalcia iphis* Drury.

- (6) Fabricius (1793: Ent. Syst. 3: pages 344 to 347) includes:

- (a) *bixæ* Lin: considered to be a variety of *tityrus* Fab.

- (b) *zeleucus* Nov: black with white cilia, head and anus red: "Indiis"; figured in Jones icones (unpublished), vol. 6, plate 25, fig. 2. It is the true *phidias* Lin., which he misidentified.

- (c) *mænas* Fab. 1787: black with white cilia, palpi and anus red, a white band on the hindwing underside: in America: Mus. Dr. Hunter. It is the true *bixæ* Lin., which he misidentified.

- (d) *phidias* Lin: placed as being synonymous with *acastus* Cram.

(7) Donovan (1800: Insects of India etc.) figured *zeleucus* Fab. on plate 51, fig. 3, corresponding with Fabricius' description, excepting that the legs are dark red.

(8) Hübner (1819: Verzeichniss: 103) introduced the genus *Pyrrhopyge* for:

1077. *bixæ* Linn: Syst. Pap. 264. Cramer 199 C. D.

1078. *hyperici* Hübner: not described till 1823 (Zuträge 2: 16).

1079. *phidias* Linn: Syst. Pap. 263. *acastus* Cramer 41 C, D and 199, E.

1080. *amyclas* Cramer: 199, E. 1081. *arinas* Cramer: 100, D.

(9) Swainson (1820: Zool. Ill. 1/1: plate 33) figures *zeleucus* Fab. assigning a new generic name *Tamyrius*: the figure corresponds with Fabricius' description and the figure in Jones Icones, with black and not the red legs of Donovan's figure.

(10) Latreille (1824: Enc. Meth. 9: 732-740) includes under *Hesperia*:

zeleucus Fab., with *thasus* Cramer (quite a distinct species) as a synonym.

phidias Lin.: with *acastus* Cramer as a synonym.

bixæ Lin.: with the white band on the hindwing underside as basal and not central as in Clerck's figure.

acastus Fab.: with *apastus* Cramer and various other quite distinct species as synonyms.

(11) Doubleday and Westwood (1852: Diurn Lep. II: 509 and 515) included:

Pyrrhopyga thasus Cram. = *zeleucus* Fab.

mænas Fab. = *bixæ* Cram.

phidias Lin. = *acastus* Cram. 199 and 41.

Ismene chalybe Nov. = *bixæ* Lin.?, but not the *bixæ* of Merian plate 44.

(12) Wallengren (1858: Kon. Vet. Akad. Forh. 15: 2) introduced the generic name *Pachyrhopala* for *phidias* Lin.

(13) Felder (1867: Reise Novara Zool. 2) uses the generic name *Tamyris* and not *Pyrrhopyge*.

(14) Herrich Schäffer (1869: Corr.-Blatt. Regensburg 23: 164-166) in his Prodomus included under *Pyrrhopyga*:

zeleucus Swainson (unmarked on hindwing underside).

bixæ Cramer (white band on hindwing underside).

acastus Cramer (yellow edge on hindwing underside): 41 C.

phidias Lin. (red edge on hindwing underside).

mænas Fab.: unknown to him.

(15) Scudder (1872: Fourth A. R. Peabody Acad. Sci.: 167) listed the genus thus:

Pyrrhopyga Hübner.

Type *Papilio bixæ* Linnaeus.

1. *affinis* HS. 2. *venezuelæ* Nov. 3. *chalybea* Nov.

(16) Butler (1872: Cist. Ent. 1: 176) realizing that *bixæ* Cramer was a different species from *bixæ* Lin., renamed the former *fluminis*.

(17) Scudder (1875: Proc. Amer. Acad. Arts & Sci., Boston, 10: 261) substituted *hyperici* Hübner as the type of *Pyrrhopyge*, on the ground that *phidias* (*bixæ*) had already been taken as the type of *Pachyrhopala* Wallengren, which genus was a synonym of *Tamyris* Swainson, type *zeleucus* Fab.

(18) Mabille (1878: Ent. Belg. 21: 13). Gen. Insectorum 1903. *Pyrrhopyginae* revision with Boulet 1908: An. Sci. Nat. 9/7) came to the following conclusions:

- (a) *Pyrrhopyge bixæ* Cram nec Linnæus.
- (b) *Pyrrhopyge phidias* Lin.: Clerck's plate 44, figs. 1. 2.: = *mænas* Fab.
- (c) *Pyrrhopyge zealeucus* Fab.: on Donovan's figure assigned a red pectus, an entirely different species to the true *zealeucus*.
- (d) *Mysoria venezuela* Scudder, *acastus* Cramer and *barcastus* Sepp. (= *phidias* Fab.) as three separate species.
- (e) *Rhopalocampta bixæ* Lin. from W. Africa.

(19) Plötz (1879: Stett. Ent. Zeit. 40: 179, 533, 535. 1884: Id 45: 65) dealt with the various species as follows:

- (a) *Pyrrhopyge phidias* Lin. = *mænas* Fab. and *bixæ* HS.
- (b) *Pyrrhopyge fluminis* Butler = *bixæ* Cramer.
- (c) *Pyrrhopyge zealeucus* Fab.: as described by Fab.
- (d) *Pyrrhopyge barcastus* Sepp. = *phidias* Clerck plate 44, figs. 3. 4.
- (e) *Pyrrhopyge acastus* Cramer 41 C, D = *phidias* Lin. 1764.
- (f) *Ismene bixæ* Lin.: W. Africa.

(20) Aurivillius (1882: Kong Svenska Vet.—Ak. Handl. 19/5: 61, 121, 123) in his analysis of the species described by Linnæus.

- (a) *acastus* Lin. is probably a Pierid.
- (b) *phidias* Lin. is the species figured by Clerck on plate 44, fig. 1. 2.
- (c) *bixæ* Lin. is to be taken as figured by Clerck on plate 42, fig. 4 and Merian's figure refers to *phidias*.

(21) Watson (1893: PZS: 11) follows Scudder (1875 not 1872) in taking *hyperici* Hübner as the type of *Pyrrhopyge*. He places *bixæ* Lin. in the genus *Rhopalocampta* Wallengren and erects the genus *Mysoria* with *acastus* Cramer as the type.

(22) Godman and Salvin (1893: Biol. Centr. Amer. Rhop. 2: 246, 247) considered *hyperici* to be the type of *Pyrrhopyge*; they follow Aurivillius regarding *phidias* Lin. and Mabille regarding *zealeucus* Fab.

(23) Seitz (1921: Macrolepidoptera) follows Aurivillius regarding *phidias* and *bixæ* Lin.; Mabille regarding *zealeucus* Fab.,

gives *bixæ* Cramer (= *mænas* Fab.) as a separate species and treats *acastus* Cramer and *venezuelæ* Scudder as separate subspecies.

(24) Lindsey (1925: Ann. Ent. Soc. Amer. 18: 99) asserts that Scudder's first type selection must be regarded as valid, i.e., *bixæ* Lin.: he adds that *bixæ* and *hyperici* are congeneric.

(25) Bell (1931: Jour. N. Y. Ent. Soc. 39: 420, et seq. 1933: Id 41: 268) deals with the genera and species as follows:

- (a) *Pyrrhopyge* type *hyperici* Hübner.
- (b) *zeleucus* Fab.: cannot recognise.
- (c) *phidias* Lin. = *mænas* Fab.: with a narrower white band on hindwing underside.
- (d) *fluminis* Butler = *bixæ* Cramer, nec Linnæus, which is an African species.
- (e) *Mysoria pallens* Mab. = *acastus* Cramer a homonym of *acastus* Lin.: *pallens* is a subspecies of *venezuelæ* Scud.

In accordance with the International Rules for Zoological nomenclature *bixæ* Lin. must be taken as the type of *Pyrrhopyge*. In any case *hyperici* Hübner cannot be used, as that species had not been described at the time that *Pyrrhopyge* was introduced. If Aurivillius' determination of the identity of *bixæ* Lin. is correct, it follows then that the generic name *Pyrrhopyge* must be used in replacement of the name *Cæliades* Hübner (= *Rhopalocampta* Wallengren). *Tamyris* Swainson type *zeleucus* Fab. would have to be used for the American species usually included under *Pyrrhopyge*.

The identity of any scientific name, such as *bixæ*, must, however, be considered in respect of the original description: qualifications subsequently published can only be regarded as an aid to the elucidation of the author's original intention and must be rejected if they conflict therewith. The description given by Linnæus in 1758 agrees with the Merian figure and not with the Pettifer figure he quotes: so the Merian figure must be taken as representing the type of *bixæ* Lin. The Clerek figure represents an entirely different insect from W. Africa, which Linnæus in 1764 quite incorrectly considered to be conspecific with the insect figured by Merian. Aurivillius' determination must therefore be rejected.

Bell (see No. 25 above) in his comprehensive revision of the

genus *Pyrrhopyge* brought to light that there was more than one species exactly resembling *bixæ* Linn., as here determined, but differing markedly in the genitalia. It is considered that the name should be applied to the species, which is in the B.M. from Surinam, the type locality, with genitalia as figured by Bell for *Pyrrhopyge latifasciata* Butler (1931: Jour. N. Y. Ent. Soc. 39: 485). Actually *latifasciata* is a form with a wider white band on the hindwing underside: in *bixæ* the band extends to the end of the cell but not beyond. *Mænas* Fab. is considered to be a synonym of *bixæ* Lin.

A new name is required for *bixæ* Clerck nec Lin. and *Cæliades bixana* Nov. is hereby assigned: it is sufficiently defined by Evans (1937: Cat. Afric. Hesp.: 11) and a male specimen in the British Museum from the Gold Coast has been marked as the holotype.

The identity of *phidias* Lin. must also be considered in respect of the original description. The Pettifer figure must be rejected as not agreeing with the description. The Clerck figures subsequently quoted by Linnæus must also be rejected: the original description makes no mention of either the white basal band of *phidias* Clerck or of the yellow edge of the second set of figures. The figure given by Cramer does not agree with Linnaeus' description. The description of *zeleucus* Fab. and the figure thereof in Jones' Icones does agree with the original description of *phidias* Lin. It is considered therefore that *zeleucus* Fab. should be regarded as a synonym of *phidias* Lin. Here again Bell has shown that there is more than one species exactly similar to *phidias* Lin., as here determined, but differing markedly in the genitalia. It is considered that the name should be applied to the species described by Bell as *Pyrrhopyge williamsi* (1931: Jour. N. Y. Ent. Soc. 39: 430). As pointed out above (No. 18) Mabille was incorrect in his determination of *zeleucus* Fab.

Bell (see No. 25 above) is quite correct in his action regarding *acastus* Cramer: the name must be abandoned as a homonym. It is considered that the oldest name for the collective species is *Mysoria barcastus* Sepp. of which *barcastus* Sepp (= *acastus* Cramer 1779 and *verbena* Butler), *pallens* Mabille (= *acastus* Cramer 1775) and *venezuelæ* Scudder are forms or subspecies.